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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,785	02/22/2002	David J. Leidel	1301-1125	2977

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EXAMINER
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JENKINS, DANIEL J

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 06/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/080,785

Applicant(s)

LEIDEL ET AL.

Examiner

Daniel J. Jenkins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25, 29-41 and 45-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25, 29-41 and 45-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

1. The Examiner has carefully considered Applicant's Response of 2/18/05. The Examiner notes that the primary reference of the prior rejection of 7/27/05 is to Mravic et al., with Reese et al. used as a secondary teaching. Applicant's Response appears to address Reese et al. as the primary reference (the Examiner notes that a typo exists in the rejection, with Reese et al. referred to as the primary reference in the preamble, but the body of the rejection pointing to Mravic et al. (with the language "discloses the invention substantially as claimed") as the primary reference. The Examiner clarifies the rejection, thus this rejection is accordingly not made final.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 2, 3 and 5-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mravic et al. in view of Reese et al. '791 and Goetzel. Mravic et al. disclose the invention substantially as claimed. Mravic et al. disclose a shaped charged liner (last sentence of Abstract) formed by the method comprising:

providing a high density constituent of a material selected from a group comprising tungsten (col. 2, line 18);

providing a low density constituent (col. 2, lines 22-24);

mixing the high and low density constituents to form a mixture (col. 5, lines 60 to col. 6, line 23) ; and

forming the mixture into a shaped charge liner (see last sentence of Abstract).

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Mravic et al. further disclose wherein the low density constituent comprises tin, zinc, iron, nickel, cobalt and copper (col. 2, lines 22-23).

Mravic et al. further disclose wherein the tungsten constituent is present in a preferred range of from about 70% to about 90% (col. 4, lines 13-15), but discloses Examples that contain higher levels of the high density constituent, up to about 96% (see Fig. 1).

Mravic et al. further disclose wherein the mixture comprises carbon (graphite) (col. 5, line 64).

Mravic et al. is silent as to the combination of the shaped charge liner with a housing and explosive charge.

Reese et al. '791 teaches that a shaped charge liner is used with a housing and explosive charge (col. 1, 23-47), and that the shaped charge liner is formed in a conical shape (see Reese et al. '79 Fig. 1), and that explosives including RDX, HMX, TNAZ, HNIW (col. 3, lines 5-10).

The Examiner takes notice that PYX is a well known equivalent to the shape charge liner explosives as disclosed by Reese et al.'791

It would have been obvious to one having ordinary skill in the art to form the shaped charge liner in the combination with a housing and explosive as taught by Reese et al. in the invention of Mravic et al. in order to apply the shaped charge liner to such applications.

The overlap of claimed range of material composition establishes a prima facie case of obviousness (See MPEP 2131.03).

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mravic et al. in view of Reese et al. '791 and Goetzel.

Mravic et al. in view of Reese et al. '791 disclose the invention substantially as claimed (see paragraph 3 above). However, Mravic et al. in view of Reese et al. '791 do not disclose wherein a lubricant is added to the mixture.

Goetzel teaches that oil is an equivalent to graphite in the same field of endeavor for the purpose of adding lubricant to the mixture. It would have been obvious to one having ordinary skill in the art at the time of the invention to add oil in place of graphite in the invention of Mravic et al. as taught by Goetzel in order to provide lubrication.

5. Claims 23, 24 and 29-34, 35-38, 39-41, 51-57 and 58-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mravic et al. in view of Reese et al. '791 and further in view of Kock et al and Oltrogge.

Mravic et al. in view of Reese et al. '791 disclose the invention substantially as claimed (see paragraph 3 above). However, Mravic et al. in view of Reese et al. '791 do not disclose wherein the binder includes lead and a constituent selected from Mo and Ta and combinations thereof.

Mravic et al. discloses his selection of materials as an alternative to lead containing materials in order to avoid applications where lead is an undesirable contaminant (col. 1, line 18 to col. 2, line 14), but not specifically disclose a Pb binder embodiment.

Reese et al. '791 teaches that Pb is a matix material that can be used in forming high density/low density composite projectiles where Pb contamination is not undesirable.

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It would have been obvious to one having ordinary skill to substitute Pb for the low density constituent of Mravic et al. as taught by Reese et al. '791, since Reese et al. '791 teaches Pb to be an equivalent to the binder metals of Mravic et al.

Reese et al. '791 is silent as to the mixture further comprising Mo, but discloses Ni and Co as additional binder materials.

Kock et al. teaches that Mo is an equivalent material to Ni and Co in the same field of endeavor.

Thus, it would have been obvious to substitute molybdenum for cobalt or nickel in the invention of Mravic et al. in view of Reese et al. '791, since the substitution is known as taught Kock et al.

Oltrogge teaches Ta is a high density material that can be used as an equivalent to W in the same field of endeavor (col. 5, line 5 to col. 6, line 32).

It would have been obvious to one having ordinary skill to substitute Ta in part for the tungsten material of Mravic et al. in view of Reese et al. '791, since Oltrogge teaches the equivalence of these materials. The Examiner notes that no weight is given to the characterization of Ta as a binder material.

6. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mravic et al. in view of Reese et al. '791 and further in view of Goetzel.

Mravic et al. in view of Reese et al. '791 disclose the invention substantially as claimed (see paragraph 5 above). However, Mravic et al. in view of Reese et al. '791 do not disclose wherein and oil lubricant is added to the mixture.


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Goetzel teaches that oil is an equivalent to graphite in the same field of endeavor for the purpose of adding lubricant to the mixture. It would have been obvious to one having ordinary skill in the art at the time of the invention to add oil in place of graphite in the invention of Mravic et al. as taught by Goetzel in order to provide lubrication.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Jenkins whose telephone number is 571-272-1242. The examiner can normally be reached on M-TH6:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1242. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel J. Jenkins  
Primary Examiner  
Art Unit 1742

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